

AMENDMENTS TO THE CLAIMS

1-14 (Cancelled)

15. (Currently Amended) A multi-service monitoring system comprising:

computer server systems having a cluster of application servers communicatively coupled on a computer network to serve applications over the computer network to a plurality of computer clients client systems, each of the application servers comprising a plurality of server nodes, wherein a computer server system having a processor and a storage medium coupled with the processor, the computer system including an application server having[[:]]:

an administration service to generate a plurality of runtime management beans ("MBeans") on each of the server nodes and to associate each of the runtime MBeans with specified server node resources, each of the runtime MBeans collecting and reporting monitoring data for its associated resource of resources via an MBean server; and

a monitor service in communication with the administration service, the monitor service to generate monitor MBeans corresponding to selected runtime MBeans, wherein each of the monitor MBeans corresponds to at least one of the runtime MBeans, wherein each of the monitor MBean having a resource identifier to identify its corresponding runtime MBean and an associated resource being monitored by the runtime MBean. the monitor MBeans arranged in a hierarchical tree structure, each of the monitor MBeans associated with at least one of the runtime MBeans, each of the monitor MBeans to receive the monitoring data from its associated corresponding runtime MBean.

16. (Original) The system as in claim 15 further comprising:
a notification service to generate notifications in response to certain specified events associated with certain resources of certain MBeans, the notification service distributing the notifications across all, or a subset of, the server nodes of the cluster.
17. (Original) The system as in claim 15 further comprising:
an administration adapter service include a convenience interface to provide access to one or more of the MBean servers from a remote client.
18. (Original) The system as in claim 17 wherein the administration adapter service further comprises:
a swing-based graphical user interface ("GUI") coupled to the convenience interface and the hierarchical tree structure, the swing-based GUI to represent the management functionality of the monitoring architecture to a network administrator or end user.
19. (Original) The system as in claim 17 wherein the administrator adapter service comprises a shell command interface comprising a plurality of shell commands for controlling monitor configuration data and monitor resource data.
20. (Original) The system as in claim 15 wherein the administration service generates standard runtime MBeans and specific runtime MBeans, the standard runtime MBeans providing one or more predefined standard functions for their associated resources, and the specific MBeans providing one or more resource-specific functions for their associated resources.
21. (Original) The system as in claim 20 wherein one of the standard functions comprises starting and stopping of the resource.
22. (Original) The system as in claim 20 wherein one of the standard functions comprises getting and/or setting properties associated with the resource.

23. (Original) The system as in claim 20 wherein each resource having a specific MBean associated therewith also has a standard MBean associated therewith.
24. (Original) The system as in claim 15 wherein each of the application servers comprises a plurality of server nodes and at least one dispatcher node, and wherein the administration service generate runtime MBeans on each of the server nodes and the one or more dispatcher nodes and associates each of the runtime MBeans with specified server node and/or dispatcher resources, each of the runtime MBeans collecting and reporting monitoring data for its associated resource via an MBean server.
25. (Original) The system as in claim 15 wherein one of the specified events comprises a value associated with a resource reaching a first threshold value.
26. (Original) The system as in claim 25 wherein one of the specified events comprises the value associated with the resource reaching a second threshold value, the second threshold value representing a critical resource value.
27. (Original) The system as in claim 15 wherein one of the specified events comprises a resource becoming unavailable.
- 28-29 (Cancelled)
30. (New) A method comprising:
- communicatively coupling a cluster of application servers on a network to serve applications over the network to a plurality of clients, each of the application servers comprising a plurality of server nodes;
- generating a plurality of runtime management beans ("MBeans") on each of the server nodes and to associate each of the runtime MBeans with specified server node resources, each of the runtime MBeans collecting and reporting monitoring data for its associated resource of resources via an

MBean server; and
generating monitor MBeans corresponding to selected runtime MBeans, wherein
each of the monitor MBeans corresponds to at least one of the runtime
MBeans, wherein each of the monitor MBean having a resource
identifier to identify its corresponding runtime MBean and an associated
resource being monitored by the runtime MBean, the monitor MBeans
arranged in a hierarchical tree structure, each of the monitor MBeans to
receive the monitoring data from its corresponding runtime MBean.

31. (New) The method as in claim 30 further comprising:
generating notifications in response to certain specified events associated with
certain resources of certain MBeans, the notification service distributing the
notifications across all, or a subset of, the server nodes of the cluster.
32. (New) The method as in claim 31 further comprising:
providing access to one or more of the MBean servers from a remote client via an
administration adapter service include a convenience interface.
33. (New) The method as in claim 32 wherein the administration adapter service further
comprises:
a swing-based graphical user interface ("GUI") coupled to the convenience interface
and the hierarchical tree structure, the swing-based GUI to represent the
management functionality of the monitoring architecture to a network
administrator or end user.
34. (New) The method as in claim 32 wherein the administrator adapter service
comprises a shell command interface comprising a plurality of shell commands for
controlling monitor configuration data and monitor resource data.

35. (New) The method as in claim 30 further comprising generating standard runtime MBeans and specific runtime MBeans, the standard runtime MBeans providing one or more predefined standard functions for their associated resources, and the specific MBeans providing one or more resource-specific functions for their associated resources.
36. (New) A machine-readable storage medium comprising instructions which, when executed, cause a machine to:
- communicatively couple a cluster of application servers on a network to serve applications over the network to a plurality of clients, each of the application servers comprising a plurality of server nodes;
- generate a plurality of runtime management beans ("MBeans") on each of the server nodes and to associate each of the runtime MBeans with specified server node resources, each of the runtime MBeans collecting and reporting monitoring data for its associated resource of resources via an MBean server; and
- generate monitor MBeans corresponding to selected runtime MBeans, wherein each of the monitor MBeans corresponds to at least one of the runtime MBeans, wherein each of the monitor MBean having a resource identifier to identify its corresponding runtime MBean and an associated resource being monitored by the runtime MBean, the monitor MBeans arranged in a hierarchical tree structure, each of the monitor MBeans to receive the monitoring data from its corresponding runtime MBean.
37. (New) The machine-readable medium of claim 36 wherein the instructions which, when executed, further cause the machine to:

generate notifications in response to certain specified events associated with certain resources of certain MBeans, the notification service distributing the notifications across all, or a subset of, the server nodes of the cluster.

38. (New) The machine-readable medium of claim 36 wherein the instructions which, when executed, further cause the machine to:
provide access to one or more of the MBean servers from a remote client via an administration adapter service include a convenience interface.
39. (New) The machine-readable medium of claim 38 wherein the administrator adapter service comprises:
a swing-based graphical user interface ("GUI") coupled to the convenience interface and the hierarchical tree structure, the swing-based GUI to represent the management functionality of the monitoring architecture to a network administrator or end user.
40. (New) The machine-readable medium of claim 38 wherein the administrator adapter service comprises a shell command interface comprising a plurality of shell commands for controlling monitor configuration data and monitor resource data.
41. (New) The machine-readable medium of claim 36 wherein the instructions which, when executed, further cause the machine to generate standard runtime MBeans and specific runtime MBeans, the standard runtime MBeans providing one or more predefined standard functions for their associated resources, and the specific MBeans providing one or more resource-specific functions for their associated resources.